REMARKS

Claims 1-14 are pending. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

In the Drawings

The drawings were objected to because reference numerals M1 and M2 were not described in the specification. Applicants have amended the specification to correct this informality by including reference numerals M1, M2, P1 and P2, all of which are alignment devices as described in the specification as filed. Applicants respectfully submit that no new matter is entered by this amendment. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claim Objections

The numbering of the claims was objected to under 37 C.F.R. 1.126 because two different claims were each numbered as "claim 6". The Office Action indicates that second claim 6 through claim 13 were renumbered as claims 7-14. Applicants appreciate the correction of this error and in view of this correction, Applicants respectfully submit that the objection is moot.

Double Patenting Claim Rejections

A. Claims 3 and 5 were rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 2 and 1 respectively of co-pending application 09/988,391. Applicants respectfully traverse this rejection because claims 3 and 5 are not identical to claims 2 and 1 respectively of co-pending application 09/988,391.

For example, claim 1, which is the base claim for both claims 3 and 5, recites, in part, that the purge gas comprises an oxygen containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons. In contrast, no such recitation is found in any of the pending claims in co-pending application 09/988,391. Because the claims are of differing scope, Applicants respectfully request reconsideration and withdrawal of this rejection (See M.P.E.P. 804, IIA).

B. Claims 1, 2, 4, and 6-14 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-8 of co-pending application

09/988,391. Applicants will file a Terminal Disclaimer once the later of the two pending applications is in otherwise allowable condition.

Claim Rejections Under 35 U.S.C. § 103

A. Claims 1-5 and 7-12 were rejected under 35 U.S.C. § 103(a) over Hase et al. (U.S. Patent No. 6,252,648) in view of Somekh (U.S. Patent No. 6,394,109). Applicants respectfully traverse this rejection.

Claim 1 recites a lithographic projection apparatus which includes a gas supply to supply a purge gas to a space in the apparatus, wherein the purge gas comprises an oxygen-containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons. As admitted in the Office Action, Hase does not teach that the purge gas comprises an oxygen-containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons. The Office Action relies on Somekh as teaching that "the oxidizer may be sourced from any oxygen containing compound, such as O_3, N_2O, water vapor, ..." and alleges that it would have been obvious to combine these references. Applicants respectfully disagree.

Hase is directed to a cleaning system which uses an inert gas and a small amount of oxygen in a closed space to clean an organic compound from a lens by producing ozone. For example, Hase solves the problem of ammonium sulfate deposits (column 1, line 48), carbon deposits and other organic deposits (column 1, line 67) by using ozone to remove them. In contrast, Somekh discloses an apparatus for removing carbon from a charged particle beam lithography system. Somekh's charged particle system requires that imaging take place in an extremely low pressure enviornment as generally understood by one of ordinary skill in the art of particle beam lithography systems. Thus, Somekh's cleaning system cannot be combined with Hase's relatively high-pressure inert gas purge system. Additionally, Somekh does not disclose whether the system could be used to remove other organic deposits or ammonium sulfate deposits. Accordingly, there is no motivation to modify the system of Hase by using the carbon removing cleaning system of Somekh since it would render Hase's device less useful. The rejection is simply the result of impermissible picking and choosing of various elements, based solely on Applicant's disclosure as a blueprint. Accordingly, Applicant submits that the rejection is based on impermissible hindsight, not motivation from the references.

Claim 8 is believed allowable because the Office Action admits, on page 6, that neither Hase or Somekh teach or suggest cleaning an optical component by irradiating a space with radiation having a wavelength of less than 250 nm, as recited in claim 8.

Claims 2-5, 7, and 9-12 are believed allowable for at least the same reasons presented above with respect to claims 1 and 8 by virtue of their dependence upon claims 1 and 8 and because of the additional features recited by claims 2-5, 7, and 9-12. For example, claim 2 recites that the total amount of oxygen-containing species present in the purge gas is from 1 ppb to 10 ppm by volume. Although, Hase discloses that the concentration of oxygen is a few grams per square meter (column 4, lines 45-49), this disclosure by Hase does not correlate to the ratio of oxygen-containing species recited in claim 2. Additionally, Somekh does not teach such a ratio since Somekh, as established above, teaches that the cleaning system operates in a very low pressure environment. Therefore Somekh actually appears to teach a much larger ppm value than recited by claim 2. Therefore, no combination of Hase and Somekh teach or suggest that the total amount of oxygen-containing species present in the purge gas is from 1 ppb to 10 ppm by volume, as recited in claim 2. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

B. Claims 6, 8, 9, 13 and 14 were rejected under 35 U.S.C. § 103(a) over Hase in view of Somekh and further in view of Akagawa et al (U.S. Patent No. 6,288,769). Applicants respectfully traverse this rejection.

Claim 8, 13, and 14 each recite, in part, cleaning by irradiating the optical component with radiation having a wavelength of less than 250 nm in the presence of an oxygen containing species. As admitted neither Hasa nor Somekh teach such a feature. Additionally, Akagawa teaches that the casing is exhausted into a vacuum state and then nitrogen gas is filled into the casing (column 9, lines 11-20). The nitrogen gas allows the contaminating materials to be discharged. Accordingly, no combination of Hasa, Somekh and Akagawa teach or suggest cleaning by irradiating the optical component with radiation having a wavelength of less than 250 nm in the presence of an oxygen containing species, as recited in each of claims 8, 13, and 14.

Claims 6 and 9 are believed allowable for at least the same reasons presented above with respect to claims 1 and 8 by virtue of their dependence upon claims 1 and 8. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

Conclusion

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Attached is a marked-up version of the changes made to the specification by the current amendment. The attached Appendix is captioned **"Version with markings to show changes made"**.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Paragraph [0038] has been amended as follows:

The beam PB subsequently intercepts the mask MA which is held on a mask table MT. Having been selectively reflected by the mask MA, the beam PB traverses the lens PL, which focuses the beam PB onto an exposure area C of the substrate W. With the aid of the interferometric displacement measuring means IF, the substrate table WT can be moved accurately by the second positioning means, e.g. so as to position different exposure areas C in the path of the beam PB using wafer alignment marks P1, P2. Similarly, the first positioning means can be used to accurately position the mask MA using mask alignment marks M1, M2 with respect to the path of the beam PB. In general, movement of the object tables MT, WT will be realized with the aid of a long-stroke module (course positioning) and a short-stroke module (fine positioning), which are not explicitly depicted in Figure 1. In the case of a waferstepper (as opposed to a step-and-scan apparatus) the mask table may be connected only to a short-stroke positioning device, to make fine adjustments in mask orientation and position, or it may simply be fixed.

End of Appendix